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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,295	01/29/2004	Dominique Lo Hine Tong	PF030034	4983

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EXAMINER
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HAM, SEUNGSOOK

ART UNIT	PAPER NUMBER
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2817

DATE MAILED: 03/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/767,295

Applicant(s)

LO HINE TONG ET AL.

Examiner

Seungsook Ham

Art Unit

2817

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-12 is/are rejected.
- 7) ☒ Claim(s) 6 and 13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2/26/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Specification***

The abstract of the disclosure is objected to because the abstract should be limited to a single paragraph. "Figure 2" should be deleted. Correction is required. See MPEP § 608.01(b).

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2-5, 7, 9-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 2, "the cavity" is confusing as to which cavity refers to. Note that claim 1 claims more than one cavity. Claims 5 and 12, "said cavity" and claim 7, "the cavity" also lack antecedent basis.

In claim 3, line 19, "planes" lacks antecedent basis.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 5, 8-10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katehi et al. (US '836).

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Katehi et al. (fig.4a-4b) discloses a waveguide filter comprising: resonant cavities 127, 110, the filter being coupled to a microstrip circuit 120 placed on a substrate 118, 122; at least one cavity lies on one side of the substrate 127, and at least one other cavity lies on the other side of the substrate 110; the side of a cavity lying against the substrate is electrically closed by an earth plane supported by the substrate 114; the coupling between the microstrip circuit and one of the access cavities of the filter takes place via a slot 126 in the earth plane of the cavity, the slot being placed beneath an open-circuit microstrip line.

Katehi et al. does not show providing at least three coupled resonant cavities. However, providing additional resonant cavity is considered as an obvious modification since it is well known in the art to provide a plurality of resonant cavities to obtain a desired filter characteristics. Moreover, using the filter in a transmission unit is considered as an obvious modification since it is well known in the art to use a filter in a transmission unit and Katehi et al. suggests using the filter in a diplexer.

Claims 1-5 and 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hines et al. (US '759) in view of Katehi et al. (US '836).

Hines et al. (fig. 5) discloses a waveguide filter comprising: at least three mutually coupled resonant cavities 51-55, wherein at least one cavity 52, 54, lies on one side of a substrate 41, and at least one other cavity 51, 53, 55 lies on the other side of the substrate; the coupling between at least two cavities lying on either side of the substrate takes place via a slot 43 in an earth plane separating the cavities.

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Hines et al. does not show a microstrip circuit is placed in a substrate. However, using a microstrip circuit to couple with a resonant cavity is well known in the art. Katehi et al. (figs. 1a and 1b) discloses a waveguide filter having a microstrip circuit coupled to resonant cavities. Moreover, Katehi et al. addresses the problem of bulkiness when waveguides are used (col. 1, lines 25-29).

It would have been obvious to one of ordinary skill in the art to provide a microstrip circuit as the input/output coupling in the device of Hines et al. to miniaturized the filter device as taught by Katehi et al. (col. 2, lines 7-14).

Regarding claims 4 and 11, Hines et al. also teaches that each slot is covered with a high-conductive material (col. 4, lines 11-14).

#### ***Allowable Subject Matter***

Claims 6 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 7 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Kajikawa et al. (figs. 2) discloses a dielectric filter having dielectric resonators on both sides of a substrate; and

Yamashita et al. (fig. 13) discloses a conventional transmission unit where a filter is coupled to an amplifier.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seungsook Ham whose telephone number is (571) 272-2405. The examiner can normally be reached on Monday-Thursday, 8:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571)-272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Seungsook Ham  
Primary Examiner  
Art Unit 2817

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